

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 September 2000 (21.09.2000)

PCT

(10) International Publication Number
WO 00/54882 A1

(51) International Patent Classification⁷: B01L 3/00, B01J 19/00, B03C 1/00

(21) International Application Number: PCT/US99/21417

(22) International Filing Date:
17 September 1999 (17.09.1999)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
99 1 04113.5 15 March 1999 (15.03.1999) CN
99 1 20320.8 16 September 1999 (16.09.1999) CN

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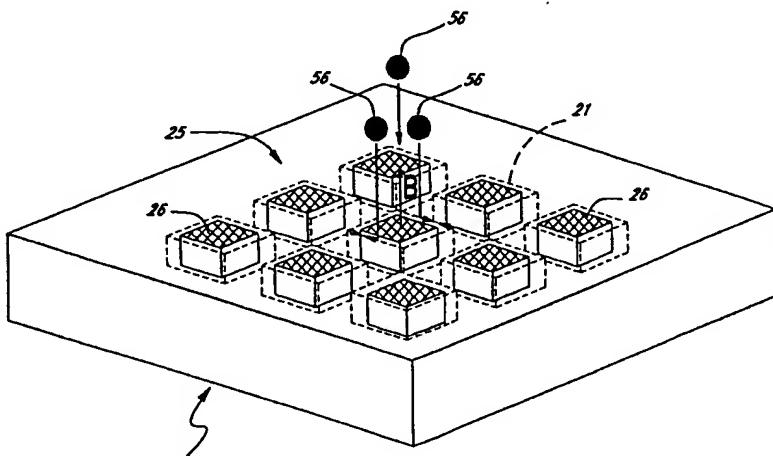
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(54) Title: INDIVIDUALLY ADDRESSABLE MICRO-ELECTROMAGNETIC UNIT ARRAY CHIPS



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(57) Abstract: This invention provides electromagnetic chips and electromagnetic biochips having arrays of individually addressable micro-electromagnetic units, as well as methods of utilizing these chips for directed manipulation of micro-particles and micro-structures such as biomolecules and chemical reagents. An electromagnetic biochip comprises an individually addressable micro-electromagnetic unit chip with ligand molecules immobilized on its surface. By controlling the electromagnetic field at each unit of the array and combining this control with magnetic modification of biomolecules, these chips can be used for directed manipulation, synthesis and release of biomolecules in order to increase sensitivity of biochemical or chemical analysis and reduce assay time. Other advantages with these chips include minimized damages to biological molecules and increased reproducibility of assay results.



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- (81) Designated States (*national*): AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU,

Published:

— *With international search report.*

(48) Date of publication of this corrected version:

22 February 2001

(15) Information about Correction:

see PCT Gazette No. 08/2001 of 22 February 2001, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.